

WHAT IS CLAIMED IS

1. A cable system comprising a major trunk and a plurality of feeder lines, each of said feeder lines being connected between a node in said trunk and a feeder line end, each of said feeder lines including a plurality of taps and a two-way communication device connected to each of said taps, each of said feeder lines including bi-directional amplifiers for passing signals in a high frequency band forward from said headend to said two-way communication devices and for passing "return" signals in a low frequency band to said headend, said two way communication devices being configured to both receive and transmit in said high frequency band, each of said feeder line ends including a receiver for receiving transmissions in said high frequency band and a means for converting signals in said high frequency band to signals in said low frequency band.

2. A cable system as in claim 1 wherein said feeder line end also includes a means for amplifying signals in said low frequency band.

3. A cable system as in claim 1 wherein both of said two-way communication devices and said headend transmit in said relatively high frequency band.

4. A cable system as in claim 1 wherein the connection between said two-way communications device and said feeder line also includes a high pass filter.

5. A cable system as in claim 1 wherein at least one of said feeder lines includes an auxiliary feeder line, said auxiliary feeder line including a band stop filter.

6. A cable system as in claim 4 wherein at least one of said feeder lines includes an auxiliary feeder line, said auxiliary feeder line including a band stop filter.

7. A cable system as in claim 1 wherein said two-way communication devices include set-top boxes.

8. A cable system as in claim 4 wherein said two-way communication devices include set-top boxes.

9. A system comprising a major trunk and a plurality of feeder lines connected between said trunk and respective feeder line ends, each of said ends including a receiver for signals in a high frequency band, said system including a headend connected to said trunk and two-way communication devices connected to said feeder lines, both said headend and said two-way communication devices being configured to transmit signals in said high frequency band, said feeder lines including bi-directional amplifiers which pass signals forward to said two-way communication devices only in said high frequency band and pass return signals to said headend only in said low frequency band, said feeder ends including first means for receiving signals in said high frequency band and a second means for transmitting said signals in said low frequency band.

10. A system as in claim 9 wherein said devices comprise set-top boxes.

11. A system as in claim 9 wherein said first means comprises a receiver of signals in said high frequency band and second means for generating signals for transmitting in said low frequency band.

12. A system as in claim 9 wherein said second means comprises a high to low frequency converter and a transmitter for transmitting signals in said low frequency band.

13. A cable system including a cable headend and a major trunk, said trunk having taps there along, said system having at least one feeder line connected between one of said taps and a feeder line end, said feeder line including at least one set-top box, said set-top box and said cable headend being configured to transmit signals indifferent portions of a high frequency band.

14. A cable system as in claim 13 wherein said headend is configured to receive signals only in a low frequency band and transmit signals in said high frequency band.

15. A cable system as in claim 14 wherein said system includes means for including a notch in said high frequency band in which said headend does not transmit, said set-top box being configured for transmitting in said notch.

16. A cable system as in claim 15 comprising a plurality of feeder lines each having a feeder line end wherein each of said feeder line ends includes a receiver for signals transmitted in said notch and means responsive to said signals for re-transmitting said signals in said low frequency band.

17. A cable system as in claim 16 wherein said means comprises a high-to-low frequency converter and a receiver of signals in said notch.

18. A cable system including a headend and a plurality of two way communication devices in which signals only in a first frequency band are transmitted in a forward direction from such headend and signals only in a second frequency band are transmitted in a return direction to said headend, said system being characterized by unacceptable noisy portions at said devices for signals in said second frequency band, said system including devices configured to transmit in said first frequency band, said system including means responsive to signals in said first frequency band from said devices for re-transmitting said signals in said second frequency band.

19. A cable system including forward amplifiers which pass signals in a first frequency band, said system including two-way communication device comprising first means for receiving transmissions in said first frequency band, said device also including second means for transmitting in said first frequency band.

20. A cable system wherein two-way communication devices as in claim 19 comprising set-top boxes.

21. A cable system comprising a cable headend, a return node and a plurality of feeder lines, each of said feeder lines being connected between said return node and a feeder line end, each of said feeder lines including a plurality of taps, a plurality of two-way communication devices connected to said taps, said cable headend and said two-way communication devices being configured to transmit in a high frequency band, each of said feeder line ends including first means for receiving transmissions in said high frequency band and second means for re-transmitting the received transmissions in a low frequency band.

22. A cable system as in claim 21 wherein said headend is configured to receive transmissions only in said low frequency band and said feeder lines include means for amplifying transmissions in said high frequency band only in a first direction towards said feeder line ends and for amplifying transmissions in said low frequency band only in a second direction towards said headend.

23. A cable system as in claim 22 also including a major trunk, said feeder lines being connected to said major trunk, said major trunk also including first and second amplifiers for amplifying transmissions in said high and low frequency bands in said first and second directions respectively.

24. A cable system as in claim 23 wherein said major trunk extends from a return node to a trunk end and said return node includes a return laser and is connected to said headend via a fiber optic cable.

25. A cable system as in claim 21 wherein said first and second means include a receiver and a high-to-low frequency converter respectively.

26. A cable system as in claim 21 wherein each of said feeder lines is connected to said major trunk via a band stop filter.

27. A cable system as in claim 26 including an auxiliary feeder line extending from a tap in one of said feeder lines to a (auxiliary) feeder line end, said auxiliary feeder line including a band stop filter and said tap, said auxiliary feeder line also including a receiver and a high-to-low frequency converter at the auxiliary feeder line end.

28. A cable system as in claim 21 wherein said two-way communication devices comprise set-top boxes.

29. A cable system as in claim 21 wherein said headend is configured to transmit in said high frequency band except for a notch portion therein, and said two way communication device is configured to transmit in said notch portion.

30. A cable system as in claim 28 wherein said headend is configured to transmit in said high frequency band except for a notch portion therein, and said set-top box is configured to transmit in said notch portion.

31. A cable system as in claim 29 wherein said two way communication device includes a band stop filter with an associated receiver of signals from said headend, said device also including a band pass filter and an associated transmitter.

32. A cable system as in claim 30 wherein said set-top box includes a band stop filter with an associated receiver of signals from said headend, said set-top box also including a band pass filter and an associated transmitter.

filter.

41. A cable system as in claim 38 also including means for receiving signals in said first frequency band at the feeder line end and a means for converting signals received in the said first frequency band into signals in the second frequency band.

42. A cable system including a high-to-low frequency converter at least first and second feeder line ends.

43. A cable system as in claim 42 including forward amplifiers that carry signals in the high frequency band and reverse amplifiers that carry signals in the low frequency band.

44. A cable system as in claim 43 including set-top boxes that have means to receive and transmit in said high frequency band.

45. A cable system as in claim 44 where the set-top boxes are connected to the cable system via high pass filters.

46. A cable system including a feeder line and an auxiliary feeder line extending therefrom via a bridger amplifier, said auxiliary feeder line including a band stop filter at said bridger amplifier, said auxiliary feeder line also including a receiver to receive signals in the high frequency band and a high-to-low frequency converter at the end thereof.

47. A cable system as in claim 46 which also includes bi-directional amplifiers in the auxiliary feeder line.

48. A cable system as in claim 47 which also include two way communications devices that are connected to auxiliary feeder line via taps and a high pass filters, said two-way communications devices having means to receive signals from said auxiliary line in the high frequency band and to transmit signals to auxiliary feeder line in the high frequency

band.

49. A cable system including an auxiliary feeder line extending from a bridger amplifier in one of feeder lines to an auxiliary feeder line end, said auxiliary feeder line including a band stop filter and also including a receiver for receiving signals in the notched out frequency band, said auxiliary feeder line end also including a means to generate signals in the low frequency band, two way communications devices being connected to said auxiliary feeder line via taps, said two way communication devices transmitting in the notched out frequency band, said two way communications devices also have a receiver.

50. A cable system as in claim 49 wherein said two way communication devices are connected to said auxiliary feeder line via high pass filters.

51. A set-top box as in claim 33 is connected to a feeder line via a high pass filter.

52. A set-top box as in claim 34 is connected to a feeder line via a low high pass filter that is lower in frequency than said low pass filter and said relatively high pass filter.